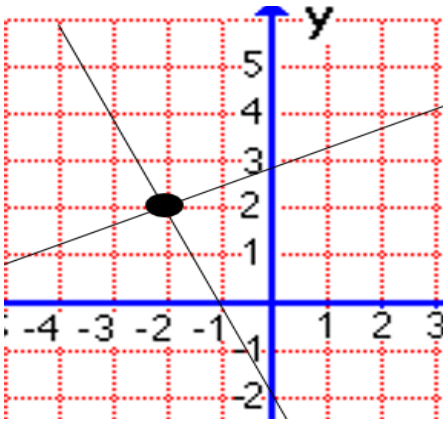
Linear Systems: <u>SOLVE WITH GRAPHING</u>

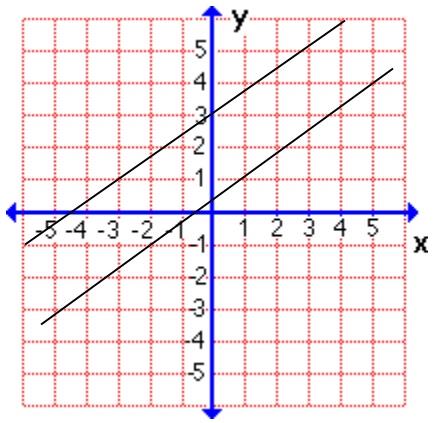
Guided Notes

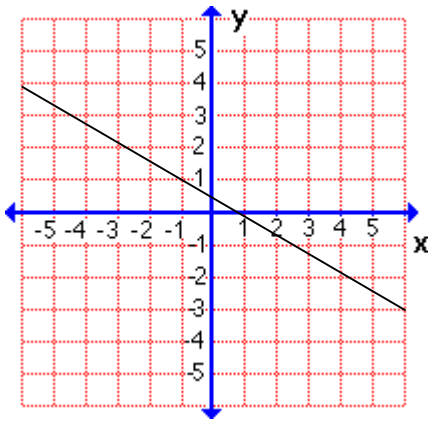
Vocabulary:

System of Linear Equations	⦿ two or more linear equations
Solution of a System of Linear Equations	⦿ an ordered pair that makes all of the equations in a system true; the point of intersection

Solutions to Systems:







One Solution: (-2, 2) (Where the lines intersect.)	**No Solution** (Parallel Lines)	**Infinite Solutions** (same line)

Graphing Method

⦿ **Step 1:** <u>Graph the lines.</u>

1. Put equations into slope intercept form and graph using y-intercept and slope.
2. Make a table and find points to plot.
3. Find the x- and y- intercepts.

⦿ **Step 2:** Identify the solution. (Ordered pair where the lines intersect)

Example: Graph to find solution:

a) $y = 3x + 1$

b) $2y = -4x - 8$

Step 1: Graph the lines.

Methods:

1. In **slope intercept form**; graph using y-intercept (b) and slope (m).
2. Put equations into slope intercept form:
   * Add or Subtract the x-term
   * Divide all terms by # in front of y
   Graph using y-intercept (b) and slope (m).
3. Make a table and find points to plot.
4. Find the x- and y- intercepts.

Step 2: Identify the solution. (Ordered pair where the lines intersect)

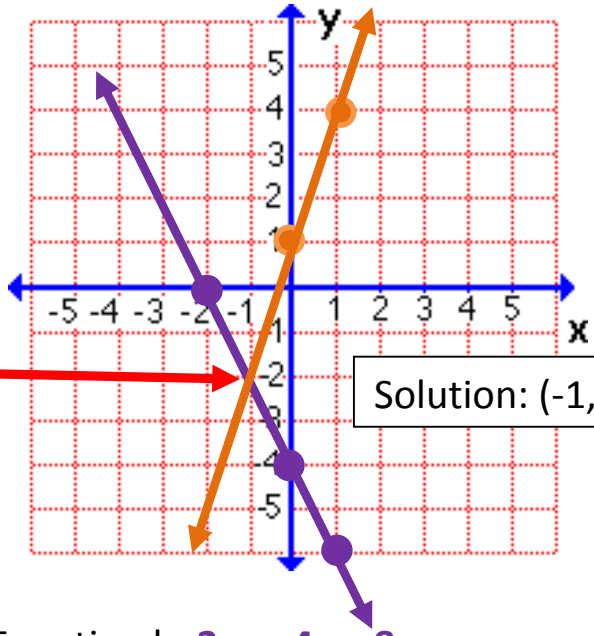
Step 1:

Equation a: **y = 3x + 1**

*is in Slope-Intercept form.

Use method 1

b = 1; m = $\frac{3}{1}$



Equation b: **2y = -4x – 8**

* is not in Slope-Intercept form.

Use method 2, 3, or 4.

Method 2: Find slope & y-intercept

2y = -4x – 8

2 2 2

y = -2x – 4

b = -4; m = $\frac{-2}{1}$

Method 3: Make a Table

2y = -4x – 8

Substitute for x and solve for y.

2y = -4(2) – 8

2y = -16

2 2

y = -8

x	y
2	-8
0	-4
-2	0

Method 4: Find Intercepts

x-intercept let y = 0

2y = -4x – 8

0 = -4x – 8

+8 + 8

8 = -4x

-4 -4

-2 = x

(-2, 0)

y-intercept let x = 0

2y = -4x – 8

2y = -4(0) – 8

2y = - 8

2 = 2

y = -4

(0, -4)